



# River Hook Preserve

## Phase I Pilot Project: Meadow Planting

Village of Upper Nyack  
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June, 2020



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## Why Native Plant Meadows?

Biodiversity, the variety of life in the world or in a particular habitat or ecosystem.

The Village of Upper Nyack is a suburb and like most of the suburbs in the United States, development has caused a severe loss of biodiversity. After years of neglect, this site is overrun with non-native plants. The ecosystem is no longer healthy.

River Hook Preserve is a unique opportunity to restore the ecosystem and increase the biodiversity that has been lost and as a consequence, provide shelter and food for insects, bees, and caterpillars, as well as birds and small mammals.

Native meadows provide benefits to people, pollinators and wildlife while demonstrating sustainable values. Native plant meadows are extremely valuable habitat, providing floral resources, nesting sites and a protected environment for hundreds of bee species, moths and butterflies, and other insects. Many birds, bats, small mammals and some amphibians also thrive on the food and shelter that a meadow ecosystem provides.

Right now, all our pollinators are in decline. Pesticides are a big factor. While honeybees are a big part of food crop pollination, other insects are hugely important



Native Meadow in Fall

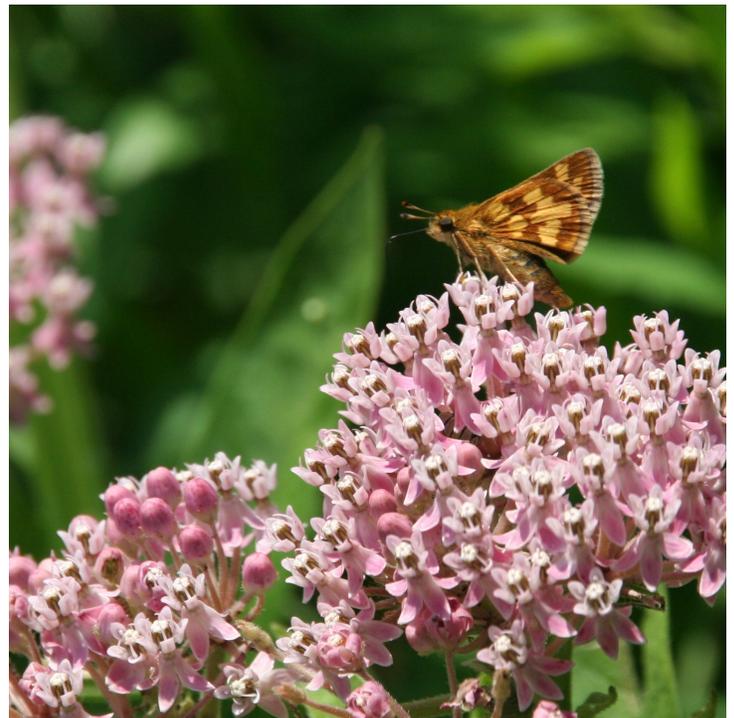
pollinators in our ecosystems. They not only ensure we have food to eat, they also ensure that plants reproduce and set fruit, which the birds are going to need in the fall.

The higher the plant diversity the more sustainable the meadow. Some species will grow and bloom in drier, hotter weather, while other species will provide a balance of foliage and flowers when the weather is wetter and cooler. This flexibility allows meadows to survive in our new, unpredictable climate. Because of the dense plant coverage and deep root systems meadows provide many other important ecosystem services too. Infiltration and filtration of stormwater, carbon storage, nutrient recycling and soil building.

Native plant meadows are ecologically-friendly landscape components that, once established, have minimal maintenance requirements.



Eastern Tiger Swallowtail on Joe-Pye Weed



Skipper on Milkweed

## Site Selection

The site that has been selected for the pilot project is the gently sloped area in front of the main house's walled courtyard. This area is approximately 63' by 95', or about 5,500 square feet, close to the same size as a professional basketball court, making it a very manageable project.

This area is highly visible from North Broadway, and is alongside the driveway which is now the main walking path through the site.

This pilot project will serve to showcase to the community the potential of the entire River Hook Preserve site, and to generate excitement about it.

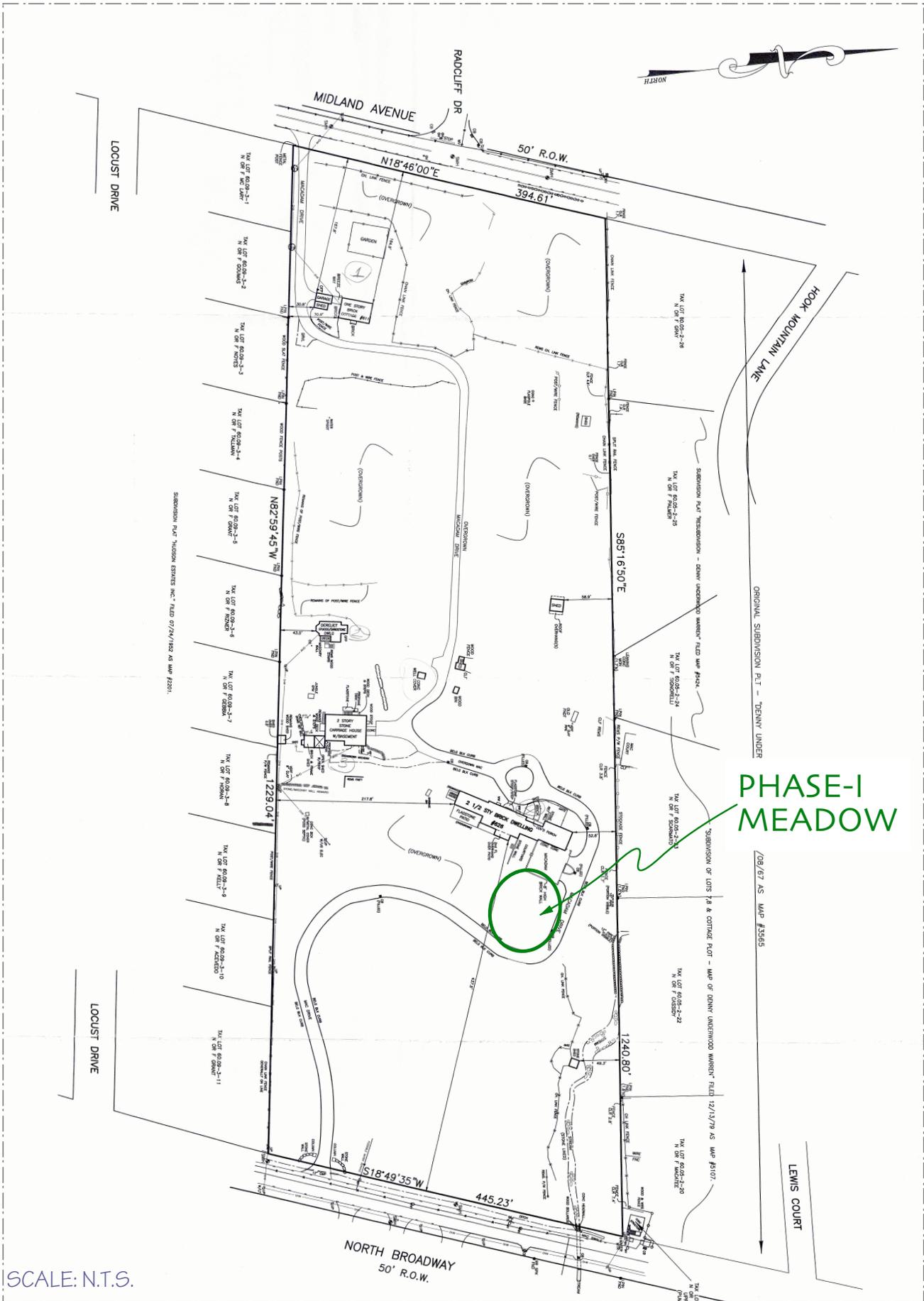
Turning this plot, now overrun with invasive species, into a native plant meadow will bring in an incredible amount of life.

While there are many native plants here, there are also many non-natives. The natives are preferential to the local deer populations, and once eaten, leave a bare spot for the invasive plants to exploit.

Existing native plants include Carex species, Violets, Thistle, Plantain and White clover.

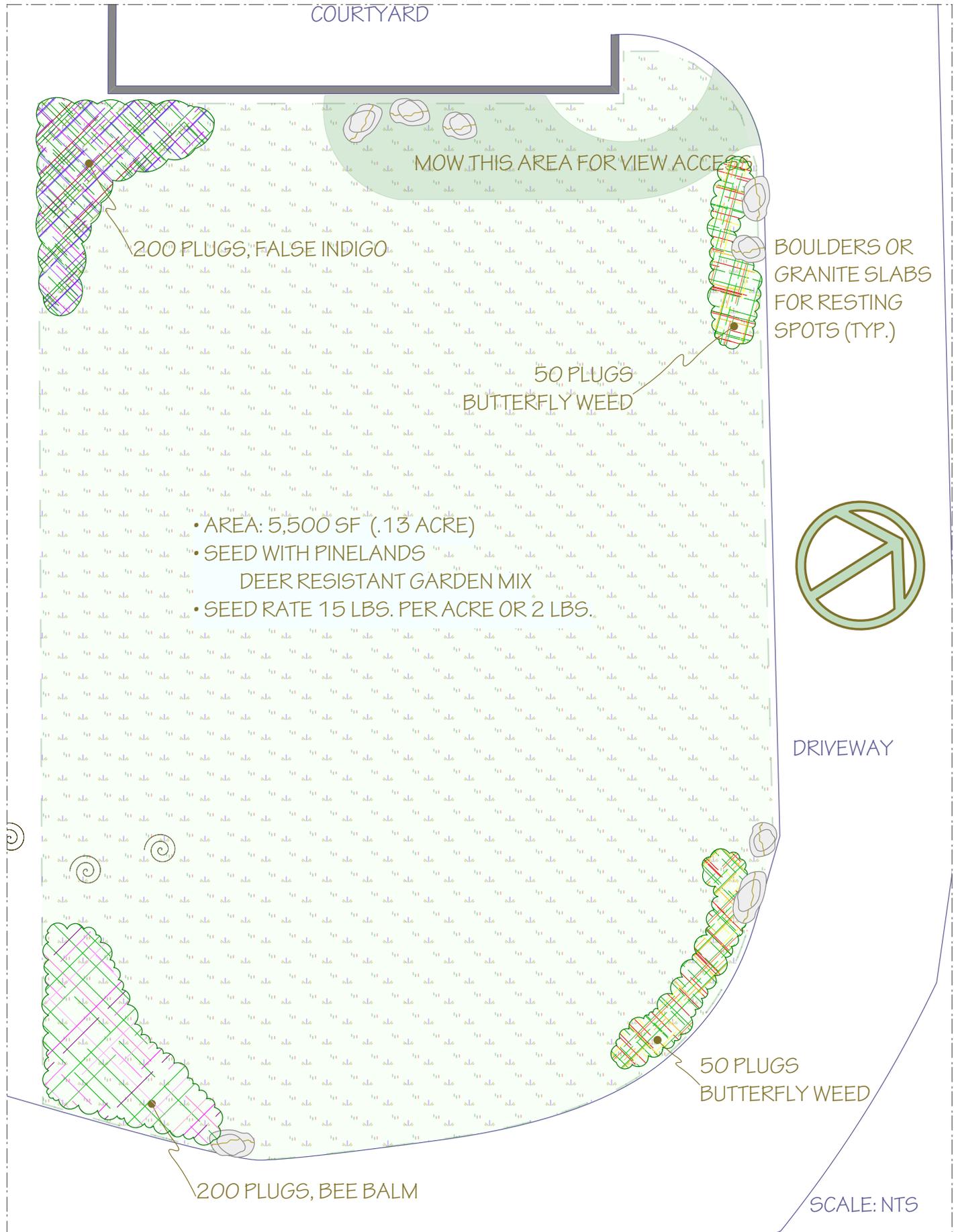
Existing non-native plants include Tree of Heaven, Empress Tree of China, Multi-flora Rose, Bramble, Barberry, Winged Euonymus, Phragmites, Japanese Foxtail, Miscanthus, Japanese Stilt Grass, Garlic Mustard, Mile-a-minute vine, Oriental bittersweet, Wild Grape.

# River Hook Preserve



SCALE: N.T.S.

# PLAN



## Design

This design is very simple and natural. The slope is planted with a specific meadow mix, but because it will not be as full and colorful as intended until its third year, we have added in 3 different perennial species as plugs. These are well rooted plants bought in 2" plugs that will bloom the first year. They are situated on the edges so that they will not be mowed down in the meadow establishment phase. These are False Indigo, a late spring bloomer that eventually becomes almost shrub like, Butterfly weed along the walk where guests can get up close to the butterflies it will attract, and Bee balm, a quick grower that will attract butterflies and hummingbirds.

We have added in boulder 'seating areas'. As this slope faces the Hudson River, this is a great place to stop and rest on the walk up the driveway from North Broadway. Alone or in groups of two, this is a nice way to do informal seating that blends in with the natural landscape. Formal seating, like benches, tends to look empty if no one is using it. It is also hard to set a bench naturally on a sloped drive.

At the top of the slope along the wall, we intend to have this area mown so guests can walk to the wall and sit on three well placed boulder 'seats' and enjoy the great view.



BOULDERS SEAT



BOULDERS TO SET AS SEATING

## Project Budget

Site Preparation - Most of the site work to prepare this area is or has been done by the village DPW and volunteers.

Tarp - Purchased previously

Seeds - 2 lbs of seed @ 82.00/lb. =	164.00 + shipping
Plugs - 500 plugs at 1.20 each =	600.00 + shipping
Sand - (4) 50 lb. Bags Play Sand @ 5.00 =	<u>20.00</u>

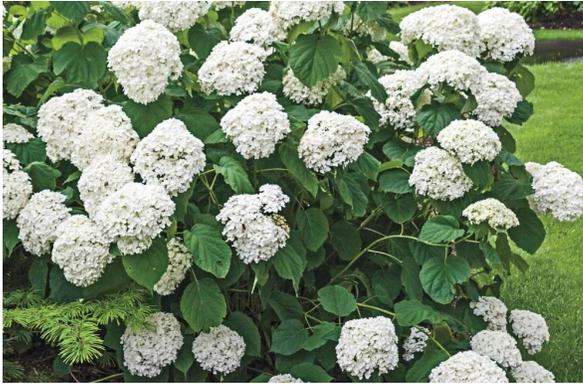
**Total Installation:** **\$ 784.00\***

\* This assumes installation and maintenance is all provided by the D.P.W. and volunteers.





Wild Hydrangea arborescens



Hydrangea a. Annabelle, a cultivar



Wild Ninebark, Physocarpus oculus



Physocarpus o. 'Coppertina', a cultivar

## Natives vs Cultivars

When you find a local wild plant in the woods, it is a native plant or 'straight species'. It has a lot of genetic variability. It has evolved with the local plant and animal populations and they serve each other well.

Most of the native plants offered for sale in your local nursery are actually cultivars. Sometimes called 'nativars' short for native cultivar. A cultivar is a plant variety that has been produced in cultivation by selective breeding for a certain trait. A double flower, brighter color, red leaves, or even disease resistance. To create more of the same plants, they must be propagated vegetatively through cuttings, grafting, or tissue culture. Propagation by seed would produce something different from the parent plant. In other words, cultivars are all genetically the same. ie they are clones.

When creating habitat to support wildlife, cultivars are not always as good as their straight cousins. Some provide the same ecological functions of providing food and shelter, others not so much. Many times a double flower makes the cultivar sterile, providing no nectar for pollinators. Think Annabelle Hydrangea. Whenever a plant was bred to have red or purple leaves, like the many Ninebark cultivars offered in nurseries, it reduces insect foraging by 80%. The pigment may be distasteful to insects. Other changes have not been studied enough to say if they have less ecological value or not.

In a world of climate change, genetic variability is important. It gives plants the genetic diversity they need to adapt or evolve. Native plants have evolved to survive in their environment, they are used to the climate, humidity and precipitation patterns. Thus they are prepared to cope when the winters are cold, the springs are wet and the summers are dry.

It is best to use tons of straight species natives in your landscapes. These plants will reward you by requiring less maintenance, less watering, and bring in more of the local fauna.

## Installation Phase

### Site Preparation

The site will be prepared for replanting using the chemical-free method of tarping. It is essential for a healthy meadow to start by eradicating all aggressive and non-native weed species. In the first two years after planting, the native seedlings will focus most of their energy on root growth, which can give the impression that they are not well established or growing well. This slow upward progress also gives the already-established weed species a huge advantage over new native seedlings in the competition for resources, which is why it is important that the existing weeds be completely eradicated before fresh native planting can begin.



**Tarping** is the proposed method for preparing the site because it is chemical free and also because it will not damage the soil quality or put the area at a greater risk to erosion like some other chemical-free options. First, the existing plants are mown down as low as possible, and the cuttings are cleared. Then the area is covered with solid tarps. The tarps used for this project are actually vinyl billboards that

were headed for the trash. The edges and centers of the tarps are secured with pins, to ensure no airflow underneath. The ground remains covered during the summer months, ideally from April to October, and periodically checked to be sure there are no loose edges or tears. This will kill the existing weeds and all seeds within the top few inches of soil, leaving the space clear and ready for a fall planting. The lack of water kills seeds as they germinate, and the heat trapped by the tarp will kill any existing seeds within the soil. When the tarps are removed, the area will be ready to be planted with diverse, native meadow seeds. Tarps should overlap approx. 1'. On the slope, arrange the flap on the uphill side to keep rain water from seeping in.

**Signage** is important at this stage, to let people know what is going on, and generate anticipation. If this is a high traffic area, the installation of fencing is recommended to keep people and animals off the area while it's trying to grow. This is a great volunteer project, to assist with cutting, covering, and then removing the tarps.

## Sowing

Planting should take place as soon as the tarps are cleared in the early fall. Once the tarps are gone, all the dead plant matter must be raked away, and the soil should be scuffed up. The seeds can be hand spread by volunteers. To ensure an even spread of the seeds, they should be thoroughly mixed with fine, damp sand before spreading (one part seeds to four parts sand). This will provide an even distribution of seeds in each handful of sandy mix, instead of smaller seeds sinking to the bottom. To spread the seeds as evenly as possible, divide into buckets for volunteers. They can spread the seeds by hand, first walking in even lines from the top to the bottom, then doing the same thing starting from the left to the right, using up the remainder of the seed mix. Once the seeds have been spread a lawn roller is used to roll the entire area and ensure that each seed is in full contact with the ground. Seeds need to be touching the soil, but not buried, in order to sprout.



## Mulching

After seeding, the entire area will be mulched with a thin covering of straw. This will protect the soil and discourage weed growth while encouraging seed germination. It is essential that this mulch be a light layer of straw, and not hay. Hay is generally filled with seeds which will interfere with our careful seeding plans.



## Finishing Touch

The plugs can be installed per plan, using a spade. Just open up a slit in soil and insert. Be sure to 'tease' out root before planting. Maintain as per instructions page 12.

**Spring 2021**  
Active Establishment

**Summer 2021**  
Mow to keep it under 12"



## **What to expect: Timeline and Maintenance**

It is important to know what to expect with the meadow. After its third year it will require very little maintenance, but its first two growing seasons require care so that weeds do not take over. To keep the aggressive weeds at bay while the seedlings are setting down roots, the meadow will need mowing every 6 weeks. This keeps weeds from setting seeds, and also keeps them from shading out small seedlings.

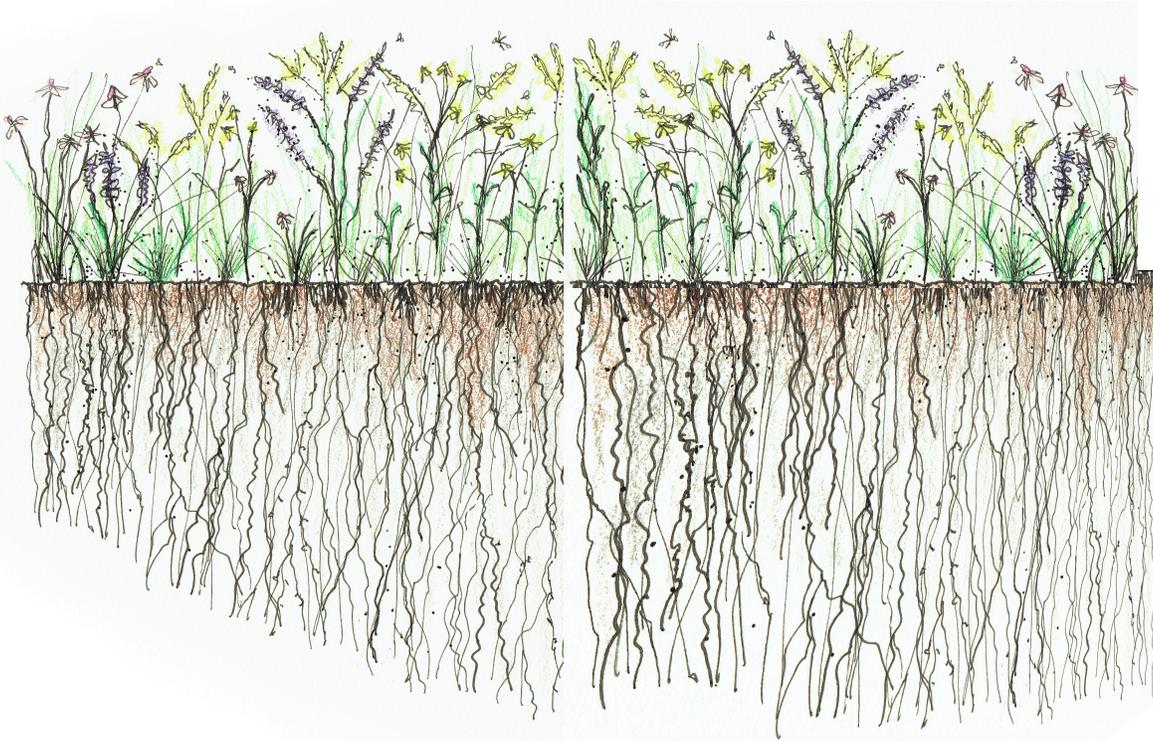
First Growing Season: Active Establishment (Spring-Fall 2021)

- This first season will require the most maintenance.
- Mow approx. every 6 weeks, or whenever the height reaches 12-18", never cutting lower than 6". This can be done with a string trimmer (also called a weed whacker) or hand scythe.
- Remove clippings if there are any, depending on the method and frequency of mowing. If mowing is frequent, clippings will be light enough not to smother seedlings.
- Any plant growing higher than 12" in the first year is a weed, identified by the already established root base that allows for more ambitious growth.
- Stop mowing by the end of fall, allowing plants enough growth to insulate for the winter.

## 2022 and Beyond

Well established

Mow only once annually in late winter or early spring



### Second Growing Season: Establishment (Spring-Fall 2022)

- This year more biennials will establish and dominate and provide the first flowers, and there will be less weeds.
- Monitor regularly for weeds, detailed on page 18 and 19.
- Mow only once in late winter or early spring.
- Expect to see birds and insects moving in this season!
- If there are a lot of visible weeds remaining, a similar mowing strategy to the previous year should eradicate any stragglers.

### Third Season and beyond: Established Meadow (2023)

- Meadow plants should dominate and only a late winter mowing is necessary.
- Always monitor for weeds.
- Now is the time to mow a path to the sitting area by the wall if you have not done so already.
- At this stage it is optional to use a controlled burn instead of late winter cutting. This is the best method, but requires help from local fire department.